

Amendments to the Specification:

Please replace the paragraph beginning at page 9, line 27, with the following rewritten paragraph:

--As mentioned, the interpolation model returns an interpolated optical response for each trial parameter set supplied by the fitting optimization algorithm. To perform this task, the interpolation model performs interpolation (or, in some cases extrapolation) using the parameter sets in database 302. This allows the interpolation model to construct interpolated optical responses for trial parameter sets, even for trial parameter sets that are not included in database 302. The construction of interpolated optical responses is performed without reference to the underlying theoretical model. In this way, the interpolation model (and in turn, interpolated refinement module 306) avoids the computational overhead of direct theoretical modeling of sample 200. Various types of interpolation models may be used. In particular, the use of multi-linear or multi-cubic based models is appropriate. Methods of this type are more fully described in U.S. Patent Application 2002/0038196, and U.S. Patent Application No. 10/611,298, now U.S. Patent No. 6,947,135, both of which are incorporated in this document by reference.--